# THE EFFECT OF GIVING BANANA WASTE POC ON THE PRODUCTION OF SEVERAL VARIETIES OF SHALLOTS

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## ABSTRACT

In increasing the growth and production of shallots, proper cultivation techniques are needed, one of which is the use of several varieties of shallots and the application of banana waste POC. This study aims to determine the growth rate and production of several varieties of shallot plants due to the administration of banana waste POC. This research was conducted in Sunggal North Sumatra from February to April 2022. This study used a factorial randomized block design (RAK) with 2 factors. The first factor is the Variety test (V) which consists of V1 = Super Philips V2 = Bauji, V3 = Bima Brebes and V4 = Maja Cipanas. The second factor is the application of POC banana weeds (B) which consists of B0 = 0 ml/L water/plot, B1 = 150 ml/L water/plot, B2 = 300 ml/L water/plot and B3 = 450 ml/L water /plots.

**Keywords**: Shallots, Banana Waste POC, Production and varieties

## INTRODUCTION

Shallots are included in the group of spices that are not substituted which function as food seasonings and traditional medicinal ingredients, which means that these onions cannot be replaced by other ingredients (Waluyo and Sinaga, 2015). Based on the data above, the production of shallots in North Sumatra in 2018 was 29,222 tons. Meanwhile, the demand for shallots in 2018 is 43,000 tons. So that the production of shallots in North Sumatra is still far below the demand. To meet the needs of shallots, about 30 percent of shallot supplies distributed in the province of North Sumatra come from outside the region, namely West Sumatra, West Nusa Tenggara, Central Java and others from Malaysia (Central Bureau of Statistics, 2018).

One of the elements supporting the success of the shallot production business is the use of quality and certified shallot bulbs. Bulbs are plant organs that experience changes in size and shape "swelling" as a result of these changes. These changes also result in anatomical changes. The organs that make up the tuber are mainly stems, roots, or their modifications. Only a few groups of plants that form tubers by involving the leaves. Shallot farmers use a variety of local and imported varieties. Some of the dominant local varieties planted are Yellow Tablet, Bima Curut, Bima Juna, Bima Brebes, Maja Cipanas, Bauji, Batu, Bima Karet, Samosir, Tuk-tuk and Sumenep. Imported seeds are imported from the Philippines, Vietnam and Thailand (Erytrina, 2013). Organic fertilizers play a role in improving the physical, chemical, and biological elements of the soil. Organic fertilizers are fertilizers that are composed of living things, such as weathering the remains of plants, animals and humans.

## LITERATURE REVIEW

Varieties are declared as superior varieties, if they have gone through selection and yield testing activities. Superior produces superior varieties with the desired traits taken by a systematic breeding procedure (Prabawati, 2013). The varieties that the author uses for this research are super philips, bauji, bima brebes and maja cipanas varieties. Varieties and

average daily temperatures greatly affect the physiological maturity of shallots. Shallots of super philip variety come from the introduction from the philippines, shallots of super philip variety can produce: 18 tons per ha of dry bulbs. It is classified as easy, the tubers can give birth to around: 9-18 bulbs per clump, lots of fruit or stalks of onion super philip variety around: 60-90. Bauji variety has a number of tillers reaching 9-16 clumps of tubers and many fruits/stalks 75-100 round seeds, flattened, wrinkled, oval tuber shape, medium tuber size (6-10 g), purple red tuber color, tuber production 14 tons / Ha dry tubers. The Bima brebes variety has a pink tuber color and an oval tuber shape with small rings on the neck of the disc, most of the tillers are 7-12 bulbs per clump and can produce tubers of about 9.9 tons/ha. Maja cipanas variety has many flowers/stems 100 – 130 (128) and flower stalks/clumps 2 – 7, seeds are round, flat, wrinkled, black in color and round tubers are dark red in color and can produce tubers 10.9 tons/ha dry tubers weight loss tubers (wet-dry) reached 24.9%.

According to Ayu (2017), the application of organic fertilizers into the soil can improve the physical, chemical and biological properties of the soil, fertilize the soil and add nutrients, add humus, affect the life of micro-organisms that live in the soil, in addition to increasing the capacity to bind groundwater. Banana hump turns out to contain high enough nutrition with a complete composition. Banana hump contains carbohydrates (66%), protein, water, and important minerals, banana hump contains 45.4% starch and 4.35% protein content. Liquid organic fertilizer (POC) banana weevil has a role in the vegetative growth of plants and plants are tolerant to disease, high levels of phenolic acid help bind Al, Fe and Ca ions so that it helps the availability of Phosphorus (P) in the soil which is useful in the flowering and flowering process. fruit formation (Saraiva *et al*, 2012) suggested that banana weevil POC contains P elements ranging from 0.2 to 0.5% which is useful in adding nutrients for plant growth and production. Considering the POC that the author made for organic fertilizer to be given to onion plants, namely banana weevil POC, therefore the author added pineapple waste, fish entrails and egg shells as a mixture of banana weevil POC.

## METHODS

This research activity was carried out in Sunggal Province, North Sumatra, Indonesia from February to April. The materials used are varieties of Bima Brebes, Super Philip, Maja Cipanas and Bauji. The study used a factorial randomized block design with 2 treatment factors and 2 blocks. The first factor is the variety consisting of the Bima Brebes, Bauji, Super Philip and Maja Cipanas varieties. the second factor consisted of giving POC banana bonggo, namely 0, 150, 300, 450 ml/liter of water/plot. Plot Size 1x1 m2. Plant sampling was carried out randomly. The implementation of the research included land preparation, preparation of shallots, planting with variations in spacing, determination of plant samples per m2 (plot), application of liquid organic fertilizer of banana weevil with various doses and maintenance such as watering. , fertilization, weed control, insertion and management of plant-disturbing organisms. Parameters observed were tuber dry weight per sample (g) and tuber dry weight per plot (g). Data were analyzed by various print analyses. If there is a significant effect of the treatment factor, then the data analysis is continued with Duncan's Multiple Range Test.

## RESULTS AND DISCUSSION

### Dry Tuber Weight per Sample (gr)

The results of the study after statistical analysis showed that the treatment of several varieties had a very significant effect on the dry tuber weight per sample (gr). Meanwhile, the

administration of banana weevil POC and the interaction between the two had no significant effect.

The average dry tuber weight per sample (gr) of several varieties of shallots due to the administration of banana weevil POC after the average difference test using Duncan's test can be seen in Table 1.

**Table 1.** Average Dry Tuber Weight Per Sample (gr) Shallots Due to POC Administration of Banana Weevil.

| Treatment | Average Dry Tuber Weight Per Sample (g) |
|---|---|
| V1=SuperPhilip | 51.03 b |
| V2=Bauji | 46.10 c |
| V3=Bima Brebes | 70.58 a |
| V4=Maja Cipanas | 59.19 b |
| B0=0 ml/L air/ plot | 55.51 |
| B1=150 ml/L air/plot | 57.86 |
| B2=300 ml/L air/ plot | 57.26 |
| B3=450 ml/L air/plot | 56.25 |

Description: The numbers followed by the letters that are not the same show differ very real according to the double Distance Test (Duncan) at 5% level

Table 1 can be seen that the variety showed a very significant effect on the average dry tuber weight per sample (gr). Where the heaviest dry tuber weight per sample was found in the bima brebes variety (V3), which was 70.58 gr and the lightest was the bauji variety (V2), which was 46.10 gr. The highest POC administration was at B1 which was 57.85 gr and the lowest was at B0 which was 55.51 gr. The difference in the responses seen was due to the genetic differences of the 4 varieties. The selection of varieties plays an important role in cultivation, because achieving a high level of productivity is largely determined by its genetic potential (Adisarwanto, 2008 in Zainiati *et.al*, 2017). Varieties are a group of individual plants that can be distinguished by each characteristic such as morphology, physiology, cytology, chemistry and others.

The high production of plants is caused by the variety being able to adapt to the conditions in which it grows. Conditions where it grows such as soil and climate greatly affect the ability to provide and implement technological innovations such as new high yielding and high quality varieties (Subandi, 2012).

**Dry Tuber Weight per Plot (gr)**

The results of the study after statistical analysis showed that the treatment of several varieties had a very significant effect on the dry tuber weight per plot (gr). Meanwhile, the administration of banana weevil POC and the interaction between the two had no significant effect.

The average dry tuber weight per plot (gr) of several varieties of shallots due to the administration of banana weevil POC after the average difference test using Duncan's test can be seen in Table 2.

**Table 2.** Average Dry Tuber Weight Per Plot (gr) Shallots Due to POC Administration of Banana Weevil

| Treatmens | Average Dry Tuber Weight Per Plot (g) |
|---|---|
| V1= Super Philip | 515.25 b |
| V2= Bauji | 449.75 c |
| V3= Bima Brebes | 721.00 a |
| V4= Maja Cipanas | 590.88 b |
| B0=0 ml/L air/ plot | 546.00 |
| B1=150 ml/L air/plot | 585.88 |
| B2=300 ml/L air/ plot | 574.75 |
| B3=450 ml/L air/plot | 570.25 |

Description: The numbers followed by the letters that are not the same show differ very real according to the double Distance Test (Duncan) at 5% level

Table 2 can be seen that the variety showed a very significant effect on the average dry tuber weight per plot (gr). Where the heaviest dry tuber weight per plot was found in the bima brebes variety (V3), which was 721 gr and the lightest was the bauji variety (V2), which was 515,25 gr. The highest POC administration was at B1 which was 585,88 gr and the lowest was at B0 which was 546 gr. This matter due to the difference in potential production of each variety. The different production of each variety is influenced by plant genetics in being able to adapt so that it will have an impact on different amounts of production. Mehran *et al* (2016) added that varieties that can adapt to environment and can grow well as well as varieties that have genetic characteristics excels when planted in the right conditions will be able to reach its gene potential and vice versa.

## CONCLUSION

The results showed that the bima brebes variety had the best variety for the production of dry tuber weight.

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